

## Office Action Summary

Application No.

09/619,848

Applicant(s)

PELRINE ET AL.

Examiner

Karen B Addison

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1)  Responsive to communication(s) filed on \_\_\_\_\_.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4)  Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) \_\_\_\_\_ is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12)  The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All   b)  Some \*   c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a)  The translation of the foreign language provisional application has been received.
- 15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_.

***Allowable Subject Matter***

1. Claim is 5 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 6-36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ravinet(4,401911) in view of Yamamuro(3832580).

Ravinet disclose the structural limitation of the generator in figures 9-14: a electromechanical transducer, two electrodes (18 and 19) that are compliant [that apply a voltage that produces a pressure in the polymer less than elastic restoring stress resulting from the stretch by means of electrical current 5 and wherein electrical energy is remove by least two electrodes during contraction], a PVDF polymer (7) [arrange in a manner which causes a change in response to a deflection (13) applied to a first portion(A) of the polymer, wherein a second portion(B) of the polymer is elastically pre-strained(fig.11) before deflection when the polymer is applied to a first orthogonal direction to enhance the change in the electric field from a deflection in the second orthogonal direction] , a generator (5) , a stiff member (20 and 23) [ coupled to at least

Art Unit: 2834

one transducer wherein the at least one stiff member substantially preventing displacement in the second direction] and a frame. Ravinet also disclose in 14 a frame (27) attached to a second portion of the polymer (2), the frame comprising at least one aperture wherein the first portion of the polymer (A) is arrange in a manner which causes a change in the electric field in response to a deflection applied to the third portion of the polymer (B). It is inherent that the generator of the type are capable of converting mechanical energy to electrical and vice versa. Ravinet does not disclose the removal of at least two electrodes during the contraction.

Yamamuro teaches a transducer in fig.1-14 comprising a polymer(1) , electrodes(2) on both sides on the polymer and aleternating voltage source (3). Yamamuro also teaches in fig.2 removing at least 2 electrodes during the contraction of the transducer for the purpose of removing the piezoelectric effects. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transducer of Ravinet with the teaching Yamamuro for the purpose of converting electrical energy in to mechanical energy vise versa.

It also is a matter of design choice to choice a polymer comprising a material selected from a group of silicone elastomer, acrylic elastomer, polyurethanea copolymer comprising PVDF with the characteristic of elastic modulus below 100MPA, a maximum linear strain of at least 50 percent, a pre-strained factor in the range of about 1.5 times to 50 times an original area prior to pre-strain, a polymer which can support a change in electric field at about 440 Mega Volts/meter, a polymer that generates a least about

Art Unit: 2834

0.15 joules per gram for the polymer and polymer that has an aspect ratio of at least 4:1.

***Response to Arguments***

3. Applicant's arguments filed 2/7/02 have been fully considered but they are not persuasive.

In response to the argument that Ravinet's does not teach whether his transducer may be feasibly extended to teach mechanical to electrical conversion capability is noted. However, Ravinet clearly show in fig. 1-9 an electromechanical transducer having a generator connected to the electrodes of the transducer. Therefore, the Ravinet's does teach mechanical to electrical conversion capability and vice versa. The definition of a generator is " a machine that converts mechanical energy into electrical energy and the definition of electromechanical is "a transducer that converts electrical energy to mechanical energy" Webster dictionary tenth edition.

In response to applicant's arguments that

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 703-306-5855. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1317. The fax phone numbers

Application/Control Number: 09/619,848

Page 5

Art Unit: 2834

for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KBA  
May 4, 2002

**U.S. DEPARTMENT OF COMMERCE**  
PATENT AND TRADEMARK OFFICE

## EXAMINER'S CASE ACTION WORKSHEET

Application No. 09/619,848		Legal Instrument Examiner
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CHECK TYPE OF ACTION

DATE OF COUNT

<input type="checkbox"/> Non-Final Rejection	<input type="checkbox"/> Restriction/Election Only	<input checked="" type="checkbox"/> Final Rejection
<input type="checkbox"/> Ex Parte Quayle	<input type="checkbox"/> Allowance	<input type="checkbox"/> Advisory Action
<input type="checkbox"/> Examiner's Answer	<input type="checkbox"/> Reply Brief Noted	<input type="checkbox"/> Non-Entry of Late Paper
<input type="checkbox"/> Defective Notice of Appeal or Defective Appeal Brief	<input type="checkbox"/> Interference SPE _____ (Approval for Disposal)	<input type="checkbox"/> Suspension SPE _____ (initial)
<input type="checkbox"/> Allowance After Examiner's Answer	<input type="checkbox"/> SIR Disposal (use only after FAOM)	<input type="checkbox"/> Post-Allowance Communication
<input type="checkbox"/> Miscellaneous Office Letter (With Shortened Statutory Period Set)	<input type="checkbox"/> Notice of Non-Responsive Amendment (With One Month Time Period set)	<input type="checkbox"/> Miscellaneous Office Letter (No Response Period Set)
<input type="checkbox"/> Letter Requiring Formal Drawings	<input type="checkbox"/> Supplemental Action (Excluding Examiner's Answer)	<input type="checkbox"/> Response to a Rule 312 Amendment
<input type="checkbox"/> Restart Time Period (e.g., Missing References)	<input type="checkbox"/> Interview Summary	<input type="checkbox"/> Authorization to Change Previous Office Action SPE: _____ (Initial)
<input type="checkbox"/> Abandonment	<input type="checkbox"/> Express Abandonment Date: _____	<input type="checkbox"/> Abandonment After Examiner's Answer

**Examiner's Name:** Karen B Addison

**AU:** 2834